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ABSTRACT

This paper discusses whether large-scale implementation of nationally funded, standards-based science and mathematics instructional materials would hasten and strengthen the process of systemic reform for districts and the states. Early findings indicate that the selected curriculum must match district needs, ongoing district leadership and support is vital, a strong professional development plan with multiple structures is necessary to create a climate for sustaining the implementation, and teacher support for the process is vital. The emerging tentative implementation models are also discussed. It is concluded that implementation models will provide a more systemic framework to guide decisions made by school systems and funders as they plan for success. (ASK)

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Statewide Implementation Program (SIP): Effective Models for Curriculum Implementation

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PREFACE

Frequently, useful research information collected for the evaluation of large scale projects is used to provide valuable feedback to the project directors and funders. Seldom is this information shared with a wider audience before the completion of the evaluation. This paper presents preliminary conclusions of a work-in-progress when much of the in-depth data is still to be to be gathered and analyzed.

STATEMENT OF THE QUESTION

The question that motivated Principal Investigators to develop the Statewide Implementation Project (SIP) proposal was whether large-scale implementation of nationally funded standards-based science and mathematics instructional materials would hasten and strengthen the process of systemic reform for districts and the state. Given the availability of multiple science and mathematics instructional materials, funded largely by the National Science Foundation, it made sense to create the opportunity for districts engaged in reform to select curricula that had the support of the major national science and mathematics communities.

Supporting multiple implementations of previously developed curriculum programs is an innovation. Under local control individual districts in most states have historically selected their own curriculum materials and encouraged the development of home-grown curriculum that is assumed to meet the particular needs of district students. While individual teacher-developed curriciulum has long been valued as an indicator of teachers' professional development and as a contribution to the conceptual framework of reform, these efforts have been limited in number and have varied greatly in quality. In most instances, individual teacher-devloped curriculum reached no more than a few classrooms and limited numbers of students in any given school or district, though there have been some exceptions most notably through CESAME's Teacher Innovation Program (TIP) and in some locales such as Mesa, AZ. Most teachers developing curriculum have done so in the context of their continuing teaching responsibilities with limited resources and competing demands.

BACKGROUND OF THE SIP PROJECT

CESAME, [http://www.neu.edu/cesame] established in 1991 at Northeastern University, has gained recognition locally, regionally and nationally for its efforts in creating awareness for and implementation of standards-based curriculum. CESAME's full and part time staff represent all levels of the educational community from elementary to higher education, including four Presidential Awardees. Most have expertise as curriculum developers and workshop leaders. All are committed to professional growth and have strong connections to national and local reform efforts. CESAME serves as the curriculum implementation resource for the Massachusetts SSI, (PALMS) which has been selected for phase II funding. CESAME also collaborates to provide services, as one of the SSI's five regional providers, to the Metro-Region which contains over 40 districts including the City of Boston.

The Statewide Implementation Program #ESI-9355610 (SIP), now in its fourth year is a five-year project designed to demonstrate how districts can successfully implement specific standards-based curricula. SIP reviews, identifies and showcases exemplary curricula. After a competitive proposal process which culminates in a contractual agreement, SIP provides districts with multi-year funding, technical assistance, professional development guided by curriculum developers, and linkages to statewide and national reform efforts. SIP also conducts research which seeks to identify the elements of effective models for successful implementation. Through frequent liaison contact, SIP continuously works to make districts accountable for collecting site data and focusing on achieving a sustained high quality implementation.

SIP's impact has already far exceeded expectations at both district and state levels. The project has showcased 20 curricula and funded the

implementation of 15 curricula at 42 sites involving over 100 schools, 1,350 teachers and 35,000 students. Over 20 new sites will be added in this last year of funding. (Please refer to the graphic on the last page.)

Curricula currently supported include: *GrowLab; Full Option Science System; Insights; Science and Technology for Children; Investigations in Number, Data and Space; MIMOSA; Event-Based Science; FACETS; Middle School Life Science; Connected Mathematics Project; MathScape: Seeing and Thinking Mathematically; Interactive Mathematics Program; Contemporary Mathematics in Context (Core-Plus); Integrated Mathematics: A Modeling Approach with Technology; Contemporary Pre-calculus through Applications* and *Insights in Biology* . SIP was instrumental in the Massachusetts SSI's (PALMS) development of the *Criteria for Evaluating Instructional Materials and Programs*, which is now part of the Massachusetts SMT Curriculum Frameworks.

DESCRIPTION OF THE EVALUATION/RESEARCH DESIGN

The SIP evaluation/research plan was divided into two phases. During the first three years, evaluators conducted intensive documentation of all of the project components, including the curriculum selection, showcasing and funding cycles, as well as the district implementation efforts. The evaluation focused on the following :

- The correspondence of the curriculum implementation to the original assumptions and vision of the program
- The actual implementation process district teams engaged in to achieve their implementation goals
- The outcomes of the implementation at various stages
- How district teams learn about implementing curriculum and share that knowledge with other interested district teams

In the last two years, evaluators are conducting research to determine:

- What conditions are necessary, within the parameters of the project, for effective implementation and dissemination of standards-based mathematics and science curricula?
- What networking arrangements are particularly useful to support districts and teachers as they implement these instructional materials?

- What kinds of technical assistance and support appear to be effective for both implementation and dissemination?

Methods

Evaluators used qualitative methods for the evaluation and research phases.[1] The evaluation plan for the first phase of the work concentrated on observing all project level events and activities, interviewing principal investigators and project staff and providing formative feedback to the project staff on an ongoing basis throughout the year. Evaluators conducted in-depth site visits to all SIP funded districts, observed professional development, classroom teaching and student activities and also interviewed participating teachers, principals, students where appropriate, other staff and administrators and SIP liaisons. Evaluators also routinely collected project documents, including copies of data generated by liaisons for SIP administration and all SIP and district documents relating to the components of the project wide activities, for each of the funding cycles and cohort groups.

In the fourth and fifth years, evaluators are conducting in-depth studies of six districts selected collaboratively with SIP project staff, based on criteria related to the research questions. Evaluators are also conducting teacher interviews with a sample of teachers from each of the non-in-depth study sites. Rather than continuing to make site visits to all districts, evaluators developed a comprehensive questionnaire for each continuing program implementation. Informed by results from phase one, the questionnaire and the in-depth study field guides incorporated information about the conditions that appear to effect implementation.

FINDINGS

What has CESAME learned about supporting district implementation?

SIP staff realized early in the first year that selecting and implementing standards-based curriculum programs is an intensive learning experience for district staff. This experience requires extensive support, counseling, and coaching to assist in the problem solving and the strategizing needed to overcome the obstacles to success. Each year SIP staff increased the amount of technical assistance given to district teams from the first moment of contact through the funding process and into the implementation. Their efforts were limited by the resources available (funds and number of staff members), and by the district teams' abilities to identify their own needs and take advantage of this resource.

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[1] SIP will be completing its fourth year and its last funding cycle at the end of this academic year. The last cohort group will be entering their first year of implementation in June, 1998. SIP will complete it fifth and final year in September, 1999.

The districts' multiple needs for support pressed SIP project staff to develop a clear description of what was called the "SIP liaison" and to convey the strengths and limitations of that role to district teams. Many district team members had never worked with a liaison/consultant before, especially not one who represented the funding agency and were very unclear about what to expect. Not surprisingly, most teams were interested in someone who would provide on-site training, order materials, re-stock kits and co-teach in the classrooms- a pastiche of expert, colleague and gopher. While SIP liaisons were earnest in their desire to help, they were also unclear about how their role differed from that of a trainer and often felt they were unable to satisfy the district team's needs.

In general, teams have expressed several reactions to the liaison. They have been either quite pleased with their liaison, slightly puzzled about the liaison's role or disappointed about the lack of on-site support. SIP liaisons have had great success in maintaining continuing electronic communications with appropriately equipped district teams. They have also successfully linked districts implementing the same curriculum program to each other, creating multi-district professional development networks that provide additional resources to each other. In spite of all these efforts, four of the forty two SIP sites have had funding discontinued due to unsustainable implementations.

SIP staff's direct experience working with the varied sites implementing different curricula coupled with the research findings to date point to the following elements supporting implementation:

District support for the curriculum program is essential, but may not be sufficient for successful implementation. District support includes a range of policies and practices, which individually or in the aggregate impact curriculum implementations.

1. SIP curriculum implementations fare well when the district curriculum has been or is being revised to align with national and statewide standards and when the political and administrative structures endorse mathematics and science change. In the absence of one or both of these conditions, teachers remain uncertain that the curriculum implementation will be sustainable. The more innovative teachers will participate in an implementation without district support in the first year, but others less interested will choose to wait or implement the program superficially, or mechanically. Without evidence of district support, teachers can create a bottom-up demand for the curriculum program if there is sufficient interest and some leadership to

advocate within the administrative levels for full adoption. In many cases, these types of implementations stay localized within a single school or a subset of district's classrooms/schools.

2. Since almost all of the exemplary curricula require "kits," sets of hands-on materials, or new tools such as graphing calculators, provisions to acquire, manage and repair these items must be part of the implementation plan. Most SIP implementation plans do not address materials management in the first year and assume that teachers will be responsible for re-supply and materials sharing systems within schools. Within a year the need for attention to materials management is obvious. District administrators that commit funds, staff, space and support for materials management make it possible for teachers to concentrate more fully on using the materials with students and remove a significant barrier to implementing materials-based curriculum programs. Districts that commit no resources to support materials management are viewed by teachers as uncommitted to the innovations and create a condition of "fragility" or uncertainty and a feeling of vulnerability for the implementation among teachers.

3. A district mandate to implement the curriculum program in the absence of a significant level of teacher interest and support is a well known recipe for difficulty. Even when teachers are curious about the program and some number of them have participated in some reform-awareness professional development and prior curriculum innovations, administrative selection of the curriculum without teachers endorsement is sufficient to create the kind of friction that can derail a committed implementation. Teachers in some SIP funded districts with top-down mandates have resisted using the curriculum materials and therefore stalled the kind of robust implementation that creates sustainable change.

4. Districts in which administrators provide funds for on-going professional development, substitutes for classroom teachers to participate in learning experiences related to the implementation, stipends for additional time for both planning and training contribute significantly to teachers' morale and their commitment to sustain the implementation. Additionally, principals and other administrators who adjust the school schedule to provide grade level and other kinds of team planning, co-teaching, peer coaching and study groups validate the importance of the teachers' need to learn and to develop a collegial learning environment that is itself a major component of sustainable reform.

5. Districts which develop a parent outreach component to educate parents about the curriculum program and invite them to become involved have great success avoiding community backlash that can jeopardize the implementation. SIP funded districts that have acted to inform and include parents using parent information nights, newsletters, Family Math and

Science nights and other events of this kind have a greater success in channeling parent concern and averting negative reactions to curriculum innovation. In general, parent concerns are expressed more at the elementary levels than at the later middle and high schools levels and, in general, seem focused on parents' need to feel they can help their children with homework.[2]

The selected curriculum must match district needs.

Change is incremental and a district's past experience with any hands-on program or replacement units that focused on inquiry-based pedagogy leads to greater success. SIP funded districts that have already begun to examine their systems and programs in relation to the current climate of reform are predisposed to more sustained curriculum program implementations than those in which there is little to no awareness of and/or interest in reform. The process of self-examination creates a climate of possibilities and encourages the leaders or risk takers and problem solvers to step forward and initiate a range of changes at the classroom and school levels. Involvement in innovations and standards-based professional development is cited by teachers as contributing to their participation in the curriculum implementation and their desire to change their practice. They view the curriculum implementation as the next logical step along the continuum of individual and district change that began before the curriculum was chosen. They understand more fully that curriculum is the link between the theory and the application of reform, the link between teaching and learning and accept the responsibility for providing the needed learning experiences for students.

Teams are most successful when the gap between the district staff's skills, competencies and beliefs and those required by the program is not too large. Teachers need to understand the general underlying principles of a curriculum. The more content, process and pedagogical skills teachers need to learn in order to successfully implement the program the longer will be their learning process. In a few SIP funded districts, that was a recipe for frustration and failure.

SIP funded districts that selected either complete or modular programs that matched well with the existing curriculum developed more sustainable implementations than those that chose programs which were philosophically and methodologically inconsistent with the surrounding curriculum. Identifying how the curriculum linked with the overall curriculum goals and

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[2] The data for this finding is drawn from a large number of elementary schools. The data about parent concerns among middle and high schools will be addressed in the fifth year.

approach reassures teachers that they are providing a high quality learning environment for students.

Teachers in districts with a patchwork curriculum express concern about the nature and consistency of the learning opportunities and experiences for students as they proceed through the grades. Those teachers not fully aware of the philosophical differences between standards-based and traditional curriculum are less likely to implement the new curriculum appropriately, minimizing the positive benefits of the curriculum program for themselves and students.

In some cases, a new curriculum program facilitated or catalyzed change. Many teachers who were not initially interested in the implementation observed its effects on students and realized the importance of providing instructional consistency as well as articulated content through the grades. In those instances, teachers were drawn into the implementation through their own experiences and remained committed as the implementation proceeded.

Ongoing district leadership and support is vital.

Since lead teachers and administrators experienced in reform efforts are in high demand, especially in districts where this experience is lacking, shared leadership and a widely supported vision is required for the successful implementation of a curriculum. SIP districts that have strong leadership teams generate more participation than those with a single leader and have more resources, a collective voice and the authority to sustain the effort through initial difficulties. Teams have a greater capacity to solve a greater number of problems more effectively than a single individual. It is very clear that problem solving and strategizing skills are critical to managing a curriculum implementation. In general, school principals *do* listen to groups of teachers and administrators *do* listen to a team composed of teachers and principals from multiple schools. School committees are much more responsive to collaborations of administrators and school-based staff in matters of funding and educational reform.

Individual school-based leaders must rely on the power of persuasion and collegial support to motivate and sustain teachers' implementation efforts since they lack the authority to make decisions that directly support teachers' learning and experimentation. In districts where individuals are the leaders, their burdens are great and they rarely have the time to mentor others who can share the role. In a few districts where a single individual shouldered the responsibility for all aspects of the implementation, others identified the implementation as very likely to disappear if and when the leader was unable to continue in that role. The burden of the implementation on a

single individual limits that person's ability to use their leadership skills to expand beyond the one implementation and help to develop a deeper infrastructure for sustaining reform. To say the least, burdening one person with all of the responsibility for a curriculum implementation creates optimal conditions for "burn out." By making the role of change agent so challenging, some districts teach others the risks, consequences and penalties of assuming that role.

A strong professional development plan with multiple structures is necessary to create a climate for sustaining the implementation.

A multi-layered, effective professional development plan must include opportunities for all participating staff to understand the philosophy and vision of the program developers and to deepen their knowledge of content and classroom practice.

1. A strong connection to the curriculum developer and availability of qualified trainers is necessary.

Most SIP teams have established a relationship with the original curriculum developers or with qualified trainers fully literate about the conceptual framework which informed the curriculum program. That framework includes the following topics:

- how students learn in a particular domain (mathematics /science)
- the scaffold of concepts embedded in the program and their relationship to the national mathematics/science standards
- the processes and professional practices within the domain
- the standards for teaching and assessment in mathematics/science
- information about the structure of schools and the cultural context for education.

Professional development delivered by the developer or expert trainer prepares teams and teachers for long term engagement with the curriculum program. In addition to the intellectual benefits of working with the developer/designee, most participants experience increased self-esteem and self-confidence, enjoy increased status and prestige within their schools and districts and increased respect from students who also feel "special" when outside "authors" visit the school and classrooms. These students and teachers express enjoyment and enthusiasm for the curriculum program, in general, and indicate an interest in continuing to teach and learn in ways consistent with the new program.

The more limited the developer contact and superficial the training, regardless of who delivered it, the less the district team and participating teachers understand the difference between the selected curriculum program and the newer so-called "standards-based" texts. The inability to make clear distinctions among the various kinds of materials alleged to satisfy the standards can lead district staff to make poorly informed materials selections and jeopardize the integrity of the curriculum implementation. Not surprisingly, teams and teachers who receive insufficient professional development also have a limited capacity to teach students for deeper conceptual understanding and inquiry skills.

Experiencing the curriculum program rationale and content with those closest to the development process is much more powerful, according to SIP data, than learning about the ideas by mechanically implementing the materials and inferring their origins. However, not all programs are sustainable in spite of the high level professional development provided by experts. In a few cases, programs that are otherwise successfully implemented have not enjoyed success through SIP support due to local, district conditions and/or insufficient planning by the district team.

2. Implementing a standards-based curriculum requires formal and informal on-site and larger group professional development approaches.

Districts that have been able to generate school-based professional development structures such as teacher interest groups, peer coaching, mentoring between new and experienced implementers, grade level meetings, inter-school training, etc. have been able to strengthen the implementation. These structures accelerate or increase teachers' capacities to move from the initial "mechanical" use to experiment with extensions, to focus on concept development and to develop effective instructional practices. While these structures rarely all occur within districts, most long-term implementations evidence some combination of them. It is not uncommon to find a range of individual efforts occurring simultaneously. For example, a few teachers implementing the curriculum may initiate study groups on assessment within their building for a few months or attend a workshop on the topic and work with one or two colleagues to develop rubrics which may or may not shared with others. A few teachers may choose to informally observe each other a few times and talk about questioning techniques.

SIP districts implementing the same curriculum have been clustered into a network and receive professional development as a community, often from the developer or expert trainer both during the summer and the school year. In addition, some SIP funded district teams and teachers have accessed other, reform-related summer institutes and professional development opportunities. These kinds of structures enhance teachers' perceptions of

themselves as leaders in the larger effort of reform and generate cross-district links and collaborations that appear to have some potential for sustaining the curriculum implementation and perhaps reform in general.

Teacher support for the process is vital.

The district curriculum implementation plan should be based on previously collected, teacher-generated information about what teachers can and will do. Implementation plans that do not realistically reflect teachers' interests, needs and willingness to innovate create expectations and demands that teachers will not be able to meet. The gap between teacher support and the implementation expectations is somewhat predictive of the success of any implementation effort. Those sites in which teachers were the least aware of the impending changes and least prepared to participate tended to experience greater difficulties or outright failure more frequently than those sites in which teachers generally agreed that a new curriculum was necessary.

Whether the curriculum was modular or comprehensive, readily available from the publisher or in the final stages of preparation for publication, kit based or involving technology, teacher support was critically important. When districts teams considered appropriate teacher support, the scope and timeline of the implementation was suited to the teachers' needs. Some teams planned a slow, multi-phased implementation over time, involving incremental use by trained teachers and annual expansion of implementing teachers. Some districts with prior experience with the selected program or something similar planned to develop teacher leaders; others planned to create building-based expertise that would sustain the teachers as a group.

In general, those districts that had a supportive teacher base tended to weather the inevitable obstacles to implementation with greater success than those with less teacher buy-in. This buy-in motivated teachers to work together and remain committed to the effort in spite of serious team leadership changes, slow delivery of the materials, district funding shortages, and other constraints such as contract negotiations. Even teachers who were evidencing little progress beyond the most mechanical implementation of a curriculum remained committed because the program they were using was sufficiently satisfying to them that they did not want to return to their prior practice.

Teacher buy-in at the start of the process may be vital for a successful initiation, but teacher buy-in during the early stages of the implementation is even more important. Teachers who continue to engage in the implementation process generally report that they are highly motivated to do so for reasons which fall into two categories.

The first category relates to the benefits of the curriculum program to their own teaching. These are remarkably similar across the various curriculum programs supported through SIP funding. Teachers indicate that as a result of teaching the curriculum, they:

- increase their own content learning
- enjoy teaching mathematics/science either more or for the first time
- teach inquiry either for the first time or in deeper ways
- learn techniques they can use in other subject areas (questioning)
- appreciate how the complete set of materials facilitates quality teaching
- feel pleasure at their students' enjoyment of learning
- practice cooperative learning
- feel that the curriculum provides authentic science/mathematics learning experiences for students and for themselves.
- provided interdisciplinary learning experiences for students/integrate strands within mathematics/science
- saw teaching and learning in a new way
- believe that they are making quality science and mathematics accessible to all students, improving equity
- act as models for others not yet implementing but motivated to do so by the positive effects they perceive in their colleagues and students
- have opportunities to integrate technology into curriculum.

The second category relates to the benefits of the curriculum program to their students. These, too, are remarkably similar across the various curriculum programs, regardless of the grade levels involved. Teachers indicate that, as a result of implementing the curriculum program, students:

- enjoy science/mathematics more, are enthusiastic about learning and take more responsibility for their learning
- are more central to the learning, since their prior knowledge and questions are integrated into the classroom work
- learn more mathematics and science content
- develop critical thinking skills
- engage in problem solving, develop multiple strategies
- develop increased self-confidence and self-esteem
- work and learn with and from other students
- develop increased respect for their peers
- develop improved communication skills both about mathematics/science and in other domains
- have increased access to technology
- engage with authentic mathematics and science materials, problems and questions
- see the connections of their learning to world around them

- have more equitable access to quality mathematics and science and opportunity to learn and achieve.

Emerging Tentative Implementation Models

The fourth and fifth year evaluation research efforts are designed to provide the information evaluators and SIP staff need to formulate a continuum of implementation models. At this point, three can be identified.

1. The first model is derived from those districts that were unable to sustain the implementation beyond the first year due to the presence of conditions that created a serious gap between the particular curriculum program features and the local conditions or district context. One of the most serious problems with these failed implementations resulted from the leadership team's inability to identify the problems and to develop strategies to solve them.

2. The second model is one in which the implementation is sustained over time but remains at the level of mechanical implementation. There are enough conditions present to support the implementation as it was planned, but not enough to motivate further change. The implementation does not seem to catalyze other reform-related activities such as comprehensive curriculum revision, teacher demand for more professional development, teacher implementation of instructional strategies in other subjects and settings, or district policies embracing reform.

Data from districts like these contain teacher and administrative perspectives that:

- the new curriculum program is satisfying and usable,
- the system's current overall approach to curriculum is successful,
- implementing teachers received adequate preparation to implement the new program
- there are no other implementation needs or issues.

The district profile is one of satisfaction and relative stasis regarding innovation and reform.

3. The third model is one of a district clearly in foment. There may be a gap between the program and the local context, but there are enough conditions present to sustain the implementation efforts, though, in some cases, near program-death experiences occur and resuscitation is by no means a sure thing. Often a benign central office and/or some set of leaders are all that stand between continuation and abandonment. What is absolutely crucial is leadership with strong problem solving skills.

In these districts, team members speak about all the challenges of sustaining the implementation, complain about the difficulties of creating a coordinated, consensus driven process and include in their discussions their perceptions that the implementation is only one component of a larger reform effort, including a complete revision of the curriculum. The climate in these districts is a mix of anxiety, frustration, elation and action, all of which suggest a deep engagement with and commitment to the implementation process. It is reasonable to call this model dynamic.

CONCLUSION

Implementation models will provide a more systematic framework to guide decisions of school systems and funders as they plan for success. Preliminary data from the first three years of the SIP project suggest at least three models. But, these emerging models are to be considered with respectful caution. They are currently under consideration and scrutiny and are by no means fully validated by the research data to date. They may change or evaporate during the final evaluation research phase.

Whatever emerges as final understandings, it is very clear that the Statewide Implementation Project has provided a unique opportunity to study and understand the process of selecting, implementing and disseminating standards-based instructional materials. Findings derived from this opportunity have the potential to greatly enhance the efforts of those engaged in systemic mathematics and science education reform . Certainly, it has had a significant impact on the teachers and students in the 39 districts that are presently supported by the project.

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Statewide Implementation Program 1996-99

Elementary

Full Option Science System (FOSS)
▪Danvers* ▪Fall River ▪Hudson* ▪Hull*
▪Norfolk* ▪South Hadley* ▪Swift River

GrowLab
▪Hamilton-Wenham ▪Norfolk ▪Salem
▪Worcester

Insights
▪Ashburnham-Westminster ▪Fitchburg

Science and Technology for Children (STC)
▪Acton ▪Beverly ▪Lunenburg ▪Marblehead
▪Millbury* ▪Northbridge* ▪Reading*

Growing with Mathematics (Mimosa)
▪Barnstable ▪Dartmouth
▪Massachusetts Hospital School

Investigations in Number, Data and Space
▪Arlington* ▪Boston ▪Brookline
▪Hampden-Wilbraham & Monson
▪Hudson ▪Marshfield ▪Nantucket* ▪Nauset
▪Northampton ▪North Orange* ▪Watertown
▪Westwood ▪Union 38/South Deerfield*

Middle

Event-Based Science
▪Blackstone Valley/Upton* ▪Cambridge
▪Winthrop*

Foundations and Challenges to Encourage Technology-based Science (FACETS)
▪Fitchburg*

Connected Mathematics Project (CMP)
▪Greenfield ▪Hadley*
▪Hampshire Regional/Westhampton* ▪Hudson*
▪Nantucket ▪Nauset ▪Newton ▪Norwell
▪Reading* ▪Sandwich* ▪Watertown*

MathScape: Seeing & Thinking Mathematically (STM)
▪Acton-Boxborough* ▪Beverly

Used Numbers
▪Hampden-Wilbraham & Monson ▪Nauset

High

Insights in Biology
▪Wareham

Contemporary Mathematics in Context (Core-Plus)
▪Northampton*

Contemporary Precalculus through Applications
▪Boston ▪Chelmsford

Interactive Mathematics Program (IMP)
▪Arlington ▪Brookline
▪Fenway Middle College
▪Silver Lake Regional

Integrated Mathematics: A Modeling Approach Using Technology (SIMMS)**

*Awarded for 1998-9 implementation
**New curriculum offering for 1998-9

1997-8	13 curricula, 40 school districts
1998-9	15 curricula, 63 school districts